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Conference Abstract

The Rise of “Digital Biology”: We need not only open, FAIR but also sustainable data!

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Abstract

Biology has already experienced great divides that decreased its global coherence and its ability to answer important scientific and societal concerns. For example in the XXth century, the so-called “Life Sciences” developed remarkably in comparison to Natural History sciences. This way, the approaches on model organisms dominated or prevented other approaches from being carried out on more diverse organisms, which may have given a misleading feeling of generality for the results obtained. Another great divide is at risk of developing now with the rise of what could be called “Digital Biology,” separating from other “material-based” approaches in its tendency to consider digital data only. Some biologists adopt a somewhat essentialist view of species and DNA, considering that enough knowledge is now accumulated, and that species records can be kept and saved as digital data only (Grandcolas 2017). Examples of this include occurrence records without specimens or auxiliary documents, taxonomic descriptions based on photographs, DNA sequences without vouchers, and, lastly, DNA sequences without taxonomic names. This tendency puts at risk the sustainability, growth, and coherence of biological knowledge that is organized in a system wherein all data and notions are connected via specimens, with names and sequences being a retrieval means (Troudet et al. 2018). This tendency also ignores the robust foundation of biology, the data of which are linked to collections, vouchers, and stocks. The foundation of physical specimens exists for data concerning any live beings, be they rare wild species or selected lines of model organisms. There are now many calls for open and FAIR science, with results, methods, tools, and data not only

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findable, accessible, and interoperable but also re-usable. More than FAIR and digitally re-usable, data need to be sustainable. It is needed that their meaning and significance can be re-analysed, re-interpreted by going back as far as possible to material vouchers. We urge then scientists to consider this question by providing all necessary material elements to make open and FAIR data sustainable as well.

Keywords

digital, biology, open science, FAIR data, sustainable

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